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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/817,193      | 03/27/2001  | Masahiko Tsuchiya    | 108097              | 9085             |

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EXAMINER

TRA, ANH QUAN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2816

DATE MAILED: 04/24/2002

#8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/817,193

Applicant(s)

TSUCHIYA, MASAHIKO

Examiner

Quan Tra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

1. Claims 1 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Shulman (USP 6064258).

Shulman discloses in figures 3-4 a differential amplifier comprising: a first differential amplifier circuit (303-1 and 304-1, figure 4) having a first differential pair (402 and 403 of figure 4) and operating based on a common input voltage ( $V_{in}$  of figure 3); and a second differential amplifier circuit (305-1 and 306-1) having a second differential pair (402 and 403 of figure 4) and operating based on the common input voltage, wherein at least one of the first differential pair and the second differential pair is formed from a pair of transistors having a driving ability difference therebetween (column 5, lines 7-38).

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shulman (USP 6064258) in view of Fong (USP 6005439).

As to claim 2, Shulman's figures 3-4 shows all limitations of the claims except for the first and second differential amplifiers connected in symmetrical push-pull configuration and having current mirror circuit. However, Fong's figure 7 shows an amplifier circuit comprising a first and second amplifier circuits connected to a common input voltage ( $V_{in}$ ), the amplifier circuit comprises: a first current mirror circuit (P1, P2) provided in the first differential amplifier circuit and formed from a first transistor (P1) of a primary conductive type and a second transistor (P2) of the primary conductive type; a second current mirror circuit (N3, N4) provided in the second differential amplifier circuit and formed from a first transistor (N3) of a secondary conductive type and a second transistor (N4) of the secondary conductive type; a third transistor (P3) of the primary conductive type which operates based on a first signal from the first differential amplifier; and a third transistor (N5) of the secondary conductive type connected in series to the third transistor of the primary conductive type and operating based on a second signal from the second differential amplifier circuit, wherein a voltage between the third transistor of the primary conductive type and the third transistor of the secondary conductive type is an output voltage. Fong's figure 7 having the advantage of increasing output current driving capability and output voltage pull-up. Therefore, it would have been obvious to one having ordinary skill in the art to use the structure of Fong's amplifier circuit for Shulman's amplifier circuit for the purpose of increasing output current driving capability and output voltage pull-up.

As to claim 3, Fong's figure 7 shows the . The differential amplifier as defined in claim 2, wherein the first differential amplifier circuit includes: a fourth transistor (N1) of the secondary conductive type connected in series to the first transistor of the primary conductive type; and a fifth transistor (N2) of the secondary conductive type connected in series to the second transistor of the primary conductive type and having a driving ability different from the fourth transistor of the secondary conductive type (teaches in Shulman's column 5, lines 7-38), wherein the fourth transistor of the secondary conductive type and the fifth transistor of the secondary conductive type form the first differential pair.

As to claim 4, Shulman teaches the with of the fourth and fifth transistors are adjusted to obtain the design current mismatch between the transistors. It is seen as an obvious design choice for selecting a driving ability of the fifth transistor of the secondary conductive type is set to be greater than a driving ability of the fourth transistor of the secondary conductive type dependent upon particular environment of use to ensure optimum performance.

As to claim 5, Fong's figure 7 shows the second differential amplifier circuit includes: a fourth transistor (P4) of the primary conductive type connected in series to the first transistor of the secondary conductive type; and a fifth transistor (P5) of the primary conductive type connected in series to the second transistor of the secondary conductive type and having a driving ability different from the fourth transistor of the primary conductive type (teaches by Shulman), wherein the fourth transistor of the primary conductive type and the fifth transistor of the primary conductive type form the second differential pair.

As to claim 6, it is seen as an obvious design choice for selecting a driving ability of the fifth transistor of the primary conductive type is set to be greater than a driving ability of the

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fourth transistor of the primary conductive type dependent upon particular environment of use to ensure optimum performance.

*Conclusion*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references are cited as interest because they show some circuits analogous to the claimed invention.

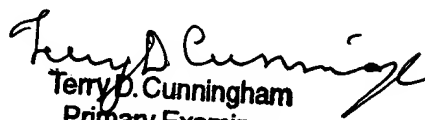
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 703-308-6174. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 703-308-4876. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

QT

QT  
April 17, 2002

  
Terry D. Cunningham  
Primary Examiner